Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A low-noise, crossed-field device comprising:

an electrical circuit for generating a radial electrical field; and

a magnetic circuit for generating an axial magnetic field substantially perpendicular to the radial electric field wherein the magnetic circuit includes at least one permanent perturbing magnet having an azimuthally varying magnetic field impressed thereupon so that the axial magnetic field is azimuthally varying to substantially eliminate microwave noise ~~in the device~~.

2. (original) The device as claimed in claim 1, wherein the at least one permanent perturbing magnet is magnetized with a number of periods of magnetic field variation.

3. (currently amended) The device as claimed in claim 2, wherein the device is a multi-cavity microwave magnetron which generates microwaves including a cathode for emitting electrons and an anode having a number of resonant cavities and wherein the cathode and anode define an interaction space therebetween wherein interactions between electrons emitted from the cathode and the electric and magnetic fields produce a series of space charge spokes that travel around the space in an azimuthal direction and wherein the number of periods is based on the number of resonant cavities to shorten start-up time of the magnetron.

4. (original) The magnetron as claimed in claim 3, wherein the microwave magnetron is a plasma processing magnetron.

5. (original) The magnetron as claimed in claim 3, wherein the microwave magnetron is an oven magnetron.

6. (original) The magnetron as claimed in claim 3, wherein the microwave magnetron is a lighting magnetron.

7. (original) The magnetron as claimed in claim 3, wherein the microwave magnetron is an industrial heating magnetron.

8. (original) The device as claimed in claim 1, wherein the device is a crossed-field amplifier including an input for receiving an input signal to be amplified within the device and an output for carrying an amplified signal from the device.

9. (original) The device as claimed in claim 8, wherein the amplifier is a radar amplifier.

10. (currently amended) The device as claimed in claim 1, wherein the device is a microwave magnetron which generates microwaves having startup and peak power phases and wherein the noise is substantially eliminated independent of magnetron current.

11. (original) The device as claimed in claim 1, wherein the device is a linear crossed-field amplifier including a cavity region and wherein the magnetic field varies in a direction of electron drift in the cavity region.

12. (currently amended) The device as claimed in claim 1, wherein the device is a microwave magnetron which generates microwaves and comprises ~~including~~ one of a plurality of mode control devices which includes ~~such as~~ strapping and rising sun geometries, or a coaxial cavity magnetron.

13. (original) The device as claimed in claim 1, wherein a typical magnitude of azimuthal variations of the axial magnetic field is approximately 30%-50%.

14. (currently amended) A microwave oven comprising:

a compartment; and

a low-noise, oven magnetron for generating microwaves in the compartment, the magnetron including:

an electrical circuit for generating a radial electrical field, the circuit including a cathode for emitting electrons and an anode having a number of resonant cavities wherein the cathode and the anode define an interaction space therebetween; and

a magnetic circuit for generating an axial magnetic field substantially perpendicular to the radial electrical field in the interaction space wherein interactions between electrons emitted from the cathode and the electric and magnetic fields produce a series of space-charge spokes that travel around the space in an azimuthal direction and wherein the magnetic circuit includes at least one permanent perturbing magnet having an azimuthally varying magnetic field impressed thereupon so that the axial magnetic field is azimuthally varying in the interaction space to substantially eliminate microwave noise ~~in the device~~.

15. (original) The oven as claimed in claim 14, wherein the at least one permanent perturbing magnet is magnetized with a number of periods of magnetic field variation.

16. (original) The oven as claimed in claim 15, wherein the number of periods is based on the number of resonant cavities to shorten start-up time of the magnetron.

17. (currently amended) A low-noise, microwave magnetron which generates microwaves, the magnetron comprising:

an electrical circuit for generating a radial electrical field, the circuit including a cathode for emitting electrons and an anode having a number of resonant cavities and wherein the cathode and anode define an interaction space therebetween and

a magnetic circuit for generating an axial magnetic field substantially perpendicular to the radial electric field in the invention space wherein interactions between electrons emitted from the cathode and the electric and magnetic fields produce a series of space charge spokes that travel around the space in an azimuthal direction wherein the axial

magnetic field has a number of periods of perturbations in the azimuthal direction in the interaction space based on the number of resonant cavities to substantially eliminate microwave noise and shorten start-up time of the magnetron.

18. (original) The microwave magnetron as claimed in claim 17, wherein the microwave magnetron is an oven magnetron.

19. (original) The microwave magnetron as claimed in claim 17, wherein the magnetic circuit includes at least one permanent perturbing magnet having an azimuthally-varying magnetic field impressed thereupon.

20. (currently amended) A microwave oven comprising:

a compartment; and

a low-noise, oven magnetron for generating microwaves in the compartment, the magnetron including:

an electrical circuit for generating a radial electrical field, the circuit including a cathode for emitting electrons and an anode having a number of resonant cavities wherein the cathode and the anode define an interaction space therebetween; and

a magnetic circuit for generating an axial magnetic field substantially perpendicular to the radial electrical field in the interaction space wherein interactions between electrons emitted from the cathode and the electric and magnetic fields produce a series of space-charge spokes that travel around the space in an azimuthal direction and wherein the axial magnetic field has a number of periods of perturbations in the azimuthal direction in the interaction space based on the number of resonant cavities to substantially eliminate microwave noise ~~in the magnetron~~ and shorten start-up time of the magnetron.

21. (original) The microwave oven as claimed in claim 20 wherein the magnetic circuit includes at least one permanent perturbing magnet having an azimuthally-varying magnetic field impressed thereupon.